an aged food product may be output to the customer before his transaction. In particular, it can be advantageous to transmit the minimum price to a price display, such as the DIGITAL MENUBOARD™ by Siren Technologies of Chicago, Ill. The DIGITAL MENUBOARD™ allows promotional messages to be displayed, such as sale prices for food products. Furthermore, the price display would be a convenient way to display product prices that decrease with time. In summary, the customer may see various aged food products advertised at reduced prices before his transaction, and thus aged inventory may be sold upon initiation by the customer.

Some customers may change their mind after having accepted an offer for one or more food products in exchange for change due. If a customer changes his mind before the POS terminal operator has started serving another customer, then the change due amount is still readily available. Accordingly, the operator can easily refund the round-up amount. However, if the customer changes his mind a significant amount of time after the transaction, the round-up amount paid for the food product(s) is typically less readily available to the operator.

If the customer has a receipt for his transaction, the round-up amount is readily determined therefrom, and an appropriate refund may be made. However, many times a receipt will not be printed or will otherwise be unavailable. Accordingly, other methods of determining a round-up amount may be required.

One method for determining the corresponding round-up amount is to re-enter the customer's original food products ordered. The POS terminal may then access a database of daily transactions to determine (i) whether such a transaction was really made; (ii) the round-up amount associated with the transaction, (iii) whether the alleged food product(s) were offered in exchange for the round-up amount; and (iv) whether the offer was accepted. If more than one transaction matches the customer's alleged transaction, the customer may further provide an approximate time of day of the transaction to properly identify his transaction. If appropriate, the POS terminal operator may then refund the appropriate amount to the customer.

Although the present invention has been described with respect to a preferred embodiment thereof, those skilled in the art will note that various substitutions may be made to those embodiments described herein without departing from the spirit and scope of the present invention. For example, although in the embodiments described above reference was made to apparatus that keep food products warm while they await being sold, the present invention may likewise employ apparatus that keep food products (e.g. ice cream) cold while they await being sold.

What is claimed is:

1. A method for selling an aging food product, comprising:

determining a time until expiration of a food product;

setting a minimum price of the food product based on the time until expiration;

generating a purchase price of a purchase;

generating a rounded price;

calculating a round-up amount, the round-up amount being a difference between the purchase price and the rounded price; and

providing an offer to exchange the food product for the round-up amount if the minimum price is not greater than the round-up amount.

2. The method of claim 1, in which the step of setting a minimum price of the food product comprises:

identifying a record that corresponds to the time until expiration; and

determining the minimum price from the record.

3. The method of claim 1, in which the step of setting a minimum price of the food product comprises:

identifying a record that corresponds to the time until expiration;

determining a discount from the record; and

applying the discount to a retail price to determine the minimum price.

4. The method of claim 1, in which the step of setting a minimum price of the food product comprises:

setting the minimum price to zero if the time until expiration is greater than a predetermined threshold.

5. The method of claim 1, in which the step of setting a minimum price of the food product comprises:

setting a price range of the food product the price range defined by the minimum price and a maximum price.

6. The method of claim 1, further comprising:

generating a waste receipt if the time until expiration is less than a predetermined threshold.

7. The method of claim 1, in which the step of determining a time until expiration of a food product comprises:

receiving a start signal indicating that a food product is available to sell; and

measuring an elapsed time since the start signal was received.

8. The method of claim 1, further comprising:

receiving an acceptance of the offer.

9. The method of claim 8, further comprising:

sending a signal to a demand forecasting system if the offer is accepted, the signal indicating that the food product has been sold.

10. The method of claim 1, further comprising:

outputting an indication of the minimum price.

11. The method of claim 10, in which the step of outputting an indication of the minimum price comprises:

transmitting the minimum price to a price display.

12. The method of claim 1, in which the step of determining a time until expiration of a food product comprises:

determining a time until expiration of each of a plurality of food products, the plurality of food products composing a food package; and in which the step of setting a minimum price of the food product comprises:

setting a minimum price of the food package based on the times until expiration of the food products.

13. The method of claim 12, further comprising:

setting a minimum price of each food product based on the times until expiration of the food products.

14. The method of claim 12, in which the step of setting a minimum price of the food package comprises:

setting a minimum price of each food product based on age categories of the food products.

15. A method for selling an aging food product, comprising:

measuring the age of a food product;

setting a minimum price of the food product based on the age;

generating a purchase price of a purchase;

generating a rounded price;

calculating a round-up amount, the round-up amount being a difference between the purchase price and the rounded price; and providing an offer to exchange the food product for the round-up amount if the minimum price is not greater than the round-up amount.

16. The method of claim **15**, in which the step of setting a minimum price comprises:

setting a minimum price of the food product if the age is within a predetermined age range.

17. A method for facilitating selling an aging food product, comprising:

receiving a start signal indicating that a food product is available to sell;

measuring an elapsed time since the start signal was received; and

registering the food product as available to be sold for change due if the elapsed time is greater than a predetermined threshold.

18. A method for warming a food product, comprising:

receiving a start signal indicating that a food product has been placed in a warming apparatus;

measuring an elapsed time since the start signal was received; and

registering the product as available to be sold for change due if the elapsed time is greater than a predetermined threshold.

19. A method for selling an aging food product, comprising:

receiving a first start signal indicating that a food component has been placed in a food component warmer;

measuring a first elapsed time since the first start signal was received;

using the food component to assemble a food product before the first elapsed time exceeds a predetermined threshold;

measuring the age of the food product;

setting a minimum price of the food product based on the age of the food product;

generating a purchase price of a purchase;

generating a rounded price;

calculating a round-up amount, the round-up amount being a difference between the purchase price and the rounded price; and

providing an offer to exchange the food product for the round-up amount if the minimum price is not greater than the round-up amount.

20. The method of claim **19**, further comprising:

receiving a signal that indicates that the food component has been used to assemble a food product.

21. The method of claim **19**, in which the step of measuring the age of the food product comprises:

receiving a second start signal indicating that a food product is available to sell; and

measuring a second elapsed time since the second start signal was received.

22. A method for selling an aging food product, comprising:

initiating a timer to generate an age of a food product;

determining an age category based on the age;

storing an indication of a food product that corresponds to a predetermined age category;

generating a purchase price of a purchase;

generating a rounded price;

calculating a round-up amount, the round-up amount being a difference between the purchase price and the rounded price; and

outputting an offer to exchange the food product for the round-up amount.

23. A method for selling an aging food product, comprising:

determining whether a food product that corresponds to a predetermined age category exists;

outputting an indication of the food product;

generating a purchase price of a purchase;

generating a rounded price;

calculating a round-up amount, the round-up amount being a difference between the purchase price and the rounded price; and

determining whether a food product that corresponds to a predetermined age category and that has a minimum price not greater than the round-up amount exits, and if so, outputting an offer to exchange the food product for the round-up amount.

24. A method for facilitating selling an aging food product, comprising:

measuring the age of a food product;

setting a minimum price of the food product based on the age;

generating a purchase price of a purchase;

generating a rounded price;

calculating a round-up amount, the round-up amount being a difference between the purchase price and the rounded price; and

outputting an indication of the food product if the minimum price is not greater than the round-up amount.

25. The method of claim **24**, further comprises;

receiving an acceptance signal that indicates an acceptance of an offer for the food product in exchange for the round-up amount.

26. The method of claim **24**, further comprises:

adjusting an inventory level of the food product based on the received acceptance signal.

27. A method for selling an aging food product, comprising:

determining if a food product in a warming bin can be used to satisfy an order; and

providing an offer to sell the food product for at least one of change due and a round-up amount if the food product cannot be used to satisfy an order.

28. An apparatus for selling an aging food product, comprising:

means for holding a food product;

a timer for determining a time until expiration of the food product held in the means for holding;

a database for storing a minimum price of the food product;

means for setting the minimum price based on the time until expiration; and

means for providing an offer to sell the food product for change due if the minimum price is not greater than the change due.

29. The apparatus of claim **28**, in which the means for holding a food product comprises:

a warming bin.

30. The apparatus of claim **28**, further comprising:

a food component warmer for holding a food component used to assemble the food product.

31. The apparatus of claim **28**, further comprising:

means for receiving a signal indicating that the food product has been assembled.

32. The apparatus of claim 28, further comprising:

means for receiving a signal indicating that the food product has been sold.

33. A method for facilitating selling an aging food product, comprising:

receiving a round-up amount from a POS terminal;

determining an aging food product having a minimum price that is not greater than the round-up amount; and

transmitting an indication of the food product to the POS terminal.

34. An apparatus for selling an aging food product, comprising:

a point-of-sale terminal, including

a processor, and

a memory connected to the processor and containing instructions for controlling the processor; and

an automated kitchen apparatus in communication with the point-of-sale terminal and operative to maintain aging food products held therein in a saleable condition for a predetermined period of time, the automated kitchen apparatus including means for measuring the time aged food products are held therein;

the point-of-sale terminal operative with the instructions in the memory to:

receive, from the automated kitchen apparatus, data relating to at least one aged food product contained in the automated kitchen apparatus,

determine a price for the at least one aged food product, the price being a function of the time the aged food product is contained in the automated kitchen apparatus,

output the price for the at least one aged food product, and

generate an offer to exchange the at least one aged food product for change due if the price is not greater than the change due.

35. The apparatus of claim 34, in which the price is further a function of a predetermined saleable time period during which the at least one aged food product may be sold after being placed in the automated kitchen apparatus.

36. The apparatus of claim 34, in which the processor is further operative to receive food product transaction data for a food product transaction, and in which the price is further a function of the food product transaction data.

37. The apparatus of claim 36, in which the food product transaction data includes an amount tendered for the purchase of the at least one aged food product.

38. The apparatus of claim 36, in which the food product transaction data includes data identifying a plurality of food products.

39. An apparatus for selling an aging food product, comprising:

a storage device; and

a processor connected to the storage device,

the storage device for storing a program for controlling the processor; and

the processor operative with the program to:

determine a time until expiration of a food product;

set a minimum price of the food product based on the time until expiration;

generate a purchase price of a purchase;

generate a rounded price;

calculate a round-up amount, the round-up amount being a difference between the purchase price and the rounded price; and

provide an offer to exchange the food product for the round-up amount if the minimum price is not greater than the round-up amount.

40. An apparatus for selling an aging food product, comprising:

a storage device; and

a processor connected to the storage device,

the storage device for storing a program for controlling the processor; and

the processor operative with the program to:

measure the age of a food product;

set a minimum price of the food product based on the age;

generate a purchase price of a purchase;

generate a rounded price;

calculate a round-up amount, the round-up amount being a difference between the purchase price and the rounded price; and

provide an offer to exchange the food product for the round-up amount if the minimum price is not greater than the round-up amount.

41. An apparatus for facilitating selling an aging food product, comprising:

a storage device; and

a processor connected to the storage device,

the storage device for storing a program for controlling the processor; and

the processor operative with the program to:

receive a start signal indicating that a food product is available to sell;

measure an elapsed time since the start signal was received; and

register the food product as available to be sold for change due if the elapsed time is greater than a predetermined threshold.

42. An apparatus for warming a food product, comprising:

a storage device; and

a processor connected to the storage device,

the storage device for storing a program for controlling the processor; and

the processor operative with the program to:

receive a start signal indicating that a food product has been placed in a warming apparatus;

measure an elapsed time since the start signal was received; and

register the product as available to be sold for change due if the elapsed time is greater than a predetermined threshold.

43. An apparatus for selling an aging food product, comprising:

a storage device; and

a processor connected to the storage device,

the storage device for storing a program for controlling the processor; and

the processor operative with the program to:

receive a first start signal indicating that a food component has been placed in a food component warmer;

measure a first elapsed time since the first start signal was received;

determine whether the first elapsed time exceeds a predetermined threshold;

measure the age of the food product;

set a minimum price of the food product based on the age of the food product;

generate a purchase price of a purchase;
generate a rounded price;
calculate a round-up amount, the round-up amount being a difference between the purchase price and the rounded price; and
provide an offer to exchange the food product for the round-up amount if the minimum price is not greater than the round-up amount.

44. An apparatus for selling an aging food product, comprising:
a storage device; and
a processor connected to the storage device,
the storage device for storing a program for controlling the processor; and
the processor operative with the program to:
initiate a timer to generate an age of a food product;
determine an age category based on the age;
store an indication of a food product that corresponds to a predetermined age category;
generate a purchase price of a purchase;
generate a rounded price;
calculate a round-up amount, the round-up amount being a difference between the purchase price and the rounded price; and
output an offer to exchange the food product for the round-up amount.

45. An apparatus for selling an aging food product, comprising:
a storage device; and
a processor connected to the storage device,
the storage device for storing a program for controlling the processor; and
the processor operative with the program to:
determine whether a food product that corresponds to a predetermined age category exists; and
output an indication of the food product;
generate a purchase price of a purchase;
generate a rounded price;
calculate a round-up amount, the round-up amount being a difference between the purchase price and the rounded price; and
output an offer to exchange the food product for the round-up amount.

46. An apparatus for facilitating selling an aging food product, comprising:
a storage device; and
a processor connected to the storage device,
the storage device for storing a program for controlling the processor; and
the processor operative with the program to:
measure the age of a food product;
set a minimum price of the food product based on the age;
generate a purchase price of a purchase;
generate a rounded price;
calculate a round-up amount, the round-up amount being a difference between the purchase price and the rounded price; and
output an indication of the food product if the minimum price is not greater than the round-up amount.

47. An apparatus for selling an aging food product, comprising:
a storage device; and
a processor connected to the storage device,
the storage device for storing a program for controlling the processor; and
the processor operative with the program to:
determine if a food product in a warming bin can be used to satisfy an order; and
provide an offer to sell the food product for at least one of change due and a round-up amount if the food product cannot be used to satisfy an order.

48. A computer readable medium encoded with processing instructions to direct a device to perform a method for selling an aging food product, the method comprising the steps of:
determining a time until expiration of a food product;
setting a minimum price of the food product based on the time until expiration;
generating a purchase price of a purchase;
generating a rounded price;
calculating a round-up amount, the round-up amount being a difference between the purchase price and the rounded price; and
providing an offer to exchange the food product for the round-up amount if the minimum price is not greater than the round-up amount.

49. A computer readable medium encoded with processing instructions to direct a device to perform a method for selling an aging food product, the method comprising the steps of:
measuring the age of a food product;
setting a minimum price of the food product based on the age;
generating a purchase price of a purchase;
generating a rounded price;
calculating a round-up amount, the round-tip amount being a difference between the purchase price and the rounded price; and
providing an offer to exchange the food product for the round-up amount if the minimum price is not greater than the round-up amount.

50. A computer readable medium encoded with processing instructions to direct a device to perform a method for facilitating selling an aging food product, the method comprising the steps of:
receiving a start signal indicating that a food product is available to sell;
measuring an elapsed time since the start signal was received; and
registering the food product as available to be sold for change due if the elapsed time is greater than a predetermined threshold.

51. A computer readable medium encoded with processing instructions to direct a device to perform method for warming a food product, the method comprising the steps of:
receiving a start signal indicating that a food product has been placed in a warming apparatus;
measuring an elapsed time since the start signal was received; and
registering the product as available to be sold for change due if the elapsed time is greater than a predetermined threshold.

52. A computer readable medium encoded with processing instructions to direct a device to perform a method for selling an aging food product, the method comprising the steps of:
receiving a first start signal indicating that a food component has been placed in a food component warmer;
measuring a first elapsed time since the first start signal was received;

using the food component to assemble a food product before the first elapsed time exceeds a predetermined threshold;

measuring the age of the food product;

setting a minimum price of the food product based on the age of the food product;

generating a purchase price of a purchase;

generating a rounded price;

calculating a round-up amount, the round-up amount being a difference between the purchase price and the rounded price; and

providing an offer to exchange the food product for the round-up amount if the minimum price is not greater than the round-up amount.

53. A computer readable medium encoded with processing instructions to direct a device to perform a method for selling an aging food product, the method comprising the steps of:

initiating a timer to generate an age of a food product;

determining an age category based on the age;

storing an indication of a food product that corresponds to a predetermined age category;

generating a purchase price of a purchase;

generating a rounded price;

calculating a round-up amount, the round-up amount being a difference between the purchase price and the rounded price; and

outputting an offer to exchange the food product for the round-up amount.

54. A computer readable medium encoded with processing instructions to direct a device to perform a method for selling an aging food product, the method comprising the steps of:

determining whether a food product that corresponds to a predetermined age category exists;

outputting an indication of the food product;

generating a purchase price of a purchase;

generating a rounded price;

calculating a round-up amount, the round-up amount being a difference between the purchase price and the rounded price; and

outputting an offer to exchange the food product for the round-up amount.

55. A computer readable medium encoded with processing instructions to direct a device to perform a method for facilitating selling an aging food product, the method comprising the steps of:

measuring the age of a food product;

setting a minimum price of the food product based on the age;

generating a purchase price of a purchase;

generating a rounded price;

calculating a round-up amount, the round-up amount being a difference between the purchase price and the rounded price; and

outputting an indication of the food product if the minimum price is not greater than the round-up amount.

56. A computer readable medium encoded with processing instructions to direct a device to perform a method for selling an aging food product, the method comprising the steps of:

determining if a food product in a warming bin can be used to satisfy an order; and

providing an offer to sell the food product for at least one of change due and a round-up amount if the food product cannot be used to satisfy an order.

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